

Configuration Control Board (CCB) Charter

Checkout and Launch Control System (CLCS) (CLCS CCB)

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Chairperson, KSC Program Management Council

Date

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CLCS CONFIGURATION CONTROL BOARD (CLCS CCB) CHARTER

1.0 AUTHORITY

The KSC Program Management Council (PMC) authorizes the Checkout and Launch Control System (CLCS) Configuration Control Board (CLCS CCB) to function as the change authority for the CLCS. This charter, and the processes defined herein, become effective upon its approval.

2.0 PURPOSE OF CHARTER

This charter establishes the CLCS CCB and describes its roles and responsibilities.

3.0 SCOPE

The scope of the CLCS CCB is overall configuration control of CLCS baselines, specifically:

- Establish and control the requirements baseline for the CLCS.
- Provide change authority for baselined CLCS system and application software.
- Provide change authority for baselined CLCS hardware.
- Establish and control project schedule, which includes CLCS software release schedules.
- Control project costs due to changes in requirements.
- Disposition internal change paper written against CLCS configuration-controlled hardware and software.
- Disposition internal change paper with requirements that potentially affect other organizations/functions to Control Boards for those organizations/functions.
- Disposition change paper received from Control Boards of other organizations/functions.
- Elevate to the PMC those changes which affect program level requirements or are not within budget or schedule.

4.0 DEFINITIONS

- **Appeal**

An appeal is the process that the originator follows if he/she disagrees with the Change Screening Panel (CSP) decision not to process the change request.

- **Assessment**

An assessment is a cost and technical feasibility estimate of the work to be performed in order to satisfy a requirement. Assessments include feasibility, system impacts, effectivity, safety impact, cost impact, schedule impact, and relationship of changes to other changes.

- **Baseline Requirements**

Baseline requirements are the documented requirements that represent the most current revision of approved requirements that define the functionality of the CLCS.

- **Configuration Control Board Directive (CCBD)**

The CCBD is record of the final disposition of a change request by the CLCS CCB and is noted as either rejected or approved by the CLCS Project Manager. An approval provides the authority to proceed with implementation of the request.

- **Change Implementation/Assessment Record (CIAR)**

A CIAR package is the CIAR form (KSC Form 29-86) and all assessments related to an ESR/CR and is attached to the CCBD and change request and presented to Pre Board for use in evaluating the assessments and preparing a recommendation to the CLCS CCB.

- **Change Request (CR)**

A CR is a document that requests changes to the baseline CLCS system. The requested change may have an impact on systems at other Centers or systems external to CLCS and must be documented on the CR. It is the instrument that other Centers use to initiate changes that may impact CLCS or other systems at KSC.

- **Change Screening Panel (CSP)**

The CSP reviews and screens ESR's and CR's and provides the initial technical recommendation of all change requests.

- **Changes to the Baseline Requirements**

Changes to the baseline requirements occur after a new requirement or a change to an existing baseline requirement is documented on an ESR or CR, submitted to and approved by the CLCS CCB, and implemented. These changes will establish new baseline requirements. All documentation, such as design specifications, are updated in the process prior to implementation.

- **Engineering Support Request (ESR)**

An ESR is a change request written to add or delete a capability or requirement to an existing baseline. An ESR is the vehicle used to inform other systems of a potential impact to their systems and configuration controlled items.

- **Initial Baseline**

The initial baseline is established after users and technical personnel have agreed to a set of requirements that satisfy specific needs, and the CLCS CCB has approved the requirements.

- **KSC Program Management Council (PMC)**

The KSC PMC is the organization that provides the overall guidance and advice for the development, implementation, and management of CLCS. PMC also provides the interface to other Centers and the Shuttle Program in support of CLCS.

- **Out-Of-Board**

Out-of-board is defined as the process by which a change request may be acted upon by the CLCS CCB, normally due to urgency, prior to the next board meeting and is either

dispositioned online or is handcarried to the affected organizations to obtain all concurrences and approvals.

- **Pre Board**

Pre Board makes recommendations to the CLCS CCB for final disposition of change requests.

- **Task Directive (TD)**

A TD is a document which authorizes and funds actual hardware/software changes resulting from requests for change approved by the CLCS CCB. This document specifically defines task(s) and products and identifies where performance is to be measured. It has a beginning and ending date. (NOTE: Authorizing work to United Space Alliance (USA) can be accomplished by using a TD without going through the Control Board process when the task is approved CLCS project work.)

- **Walk-On Change Request**

A walk-on change request is a request for change (ESR or CR) with a high priority or urgent requirement that is submitted to the CLCS Change Control Manager after the deadline for publishing the agenda of a scheduled meeting, but prior to the CSP or CLCS CCB meeting, and added to the agenda to be acted upon by the CSP or CLCS CCB.

5.0 MEMBERSHIP AND RESPONSIBILITIES

5.1 CHANGE SCREENING PANEL (CSP)

5.1.1 CSP Members/Attendance

Membership includes the following core members:

- CLCS Systems Engineering and Integration Division Chief
- NASA and USA User Liaisons
- CLCS S&MA Lead
- CLCS Project Controls Office Chief
- CLCS Change Control Manager

The CLCS Project Controls Office Chief will conduct the CSP. The originator (author) and technical support for each change request on the agenda will attend to discuss and justify the change request. In addition, NASA Division Chiefs and Contractor CLCS Organization Managers will attend to provide technical support as required. Depending on the specific requests, other personnel may be requested to attend to support CSP and assure coordination of the change request within CLCS's functions.

5.1.2 CSP Responsibilities

- Provide the screening and coordination function required to process changes to the CLCS baseline requirements.
- Evaluate proposed CLCS system hardware, software, and document changes for validity.

- Perform activities necessary to assure that change documents are assessed by the appropriate personnel.
- Ensure no potential implementation conflicts exist with other CLCS functionalities.
- Evaluate integrated schedules and provide impacts and status of implementation activities to the CLCS CCB upon request.
- Ensure and advise the CLCS CCB as to the proper conduct of Board activities based on the charter.

5.2 PRE BOARD

5.2.1 Pre Board Members

The primary members of the Pre Board are:

- CLCS Deputy Project Manager
- CLCS Systems Engineering and Integration Division Chief
- NASA and USA User Liaisons
- CLCS S&MA Lead
- CLCS Project Controls Office Chief
- CLCS Change Control Manager

Other personnel associated with or affected by the change request as deemed necessary by the Pre-Board Chairperson will participate in Pre Board.

5.2.2 Pre Board Responsibilities

The CLCS Deputy Project Manager will conduct the Pre Board. Pre Board thoroughly reviews each change package, which includes all assessments, and discusses or resolves any integration issues, if possible. Pre Board assures that the change package is ready for CLCS CCB and makes recommendations for disposition of the change requests to the CLCS CCB.

5.3 CLCS CCB

5.3.1 CLCS CCB Members

A core set of members attend all CLCS CCB meetings. Depending on the specific change records on the agenda, other personnel may be requested to attend to provide additional technical expertise. The following are the core CLCS CCB membership. Other NASA/Contractor members may be designated by the CLCS CCB Chairperson.

- Chairperson (CLCS Project Manager)
- Deputy Chairperson (CLCS Deputy Project Manager)
- NASA User Liaison
- CLCS Project Controls Office Chief
- CLCS Change Control Manager
- NASA CLCS Division Chiefs
- USA CLCS Project Manager
- USA User Liaison
- LMSMSS CLCS Project Manager

- Safety and Mission Assurance Representative
- Security Representative

5.3.2 CLCS CCB Responsibilities

5.3.2.1 Chairperson's Responsibilities

- Conduct meetings of the CLCS CCB.
- Assign action items as required to resolve conflicts or complete the change evaluation.
- Make final approval or disapproval on each change package.
- Refer changes outside approval authority to the PMC with coordinated change impact, evaluation, and CLCS CCB recommendation.
- Ensure all approved changes are implemented.
- Disposition changes out-of-board.
- Represent the final authority for appeal process.

5.3.2.2 Deputy Chairperson's Responsibilities

The Deputy Chairperson performs the Chairperson's responsibilities in his/her absence and has the same authority as the Chairperson. The Deputy Chairperson will notify the Chairperson of all change documents dispositioned in his/her absence and highlight those affecting CLCS project budget or schedule. This member supports the CLCS CCB Chairperson and provides technical recommendations.

5.3.2.3 User Liaisons' Responsibilities

- Represent and speak for the user, ensure appropriate user participation, and act as user point of contact to receive and provide responses to CLCS CCB action assignments.
- Ensure that the proposed requirements change is valid and appropriate for the end users.

5.3.2.4 CLCS Change Control Manager's Responsibilities

- Serve as the focal point to receive all change requests (ESR and CR) for the CLCS CCB.
- Ensure the submitted change package, which includes the ESR or CR and related support documentation (drawings, logic diagrams, etc.) is in a form that can be read and understood by CLCS management and has the appropriate signatures.
- Ensure that sufficient information, including a costs/benefits analysis, is submitted by the originator so that CSP can make decisions and support the assessment process if required.
- Assign a tracking number and enter the relevant data into an electronic tracking system.
- Maintain the change request packages in master files for the CLCS CCB and user community.
- Reproduce and distribute change packages, as appropriate.
- Develop and distribute (preferably electronically) the approved agenda to the change request originator, CLCS CCB members, and designated recipients (standard electronic distribution list) for coordination and review. Maintain a historical record of all approved CLCS CCB agendas.
- Attend all meetings and distribute meeting minutes, which include a list of the attendees, in accordance with the standard electronic distribution list. Action items resulting from the meetings will be transmitted to the affected individual/organization via electronic mail. Report on any Out-of-Board activities in accordance with the standard electronic

distribution list and also at the next CLCS CCB. Maintain a historical record of all CLCS CCB meetings (including Out-of-Board activities) and any referenced documents.

- Receive all assessments and ensure they contain appropriate data to assist in the preparation of the Change Implementation/Assessment Record (CIAR) and the Configuration Control Board Directive (CCBD). After the CLCS CCB Chairperson signs the CCBD, enter the appropriate data into the electronic tracking system.
- Distribute newly revised documents with new revision numbers to the appropriate project personnel.
- Receive all electronic closure notifications and process closure of the CLCS change requests and CCBD's (including updating the electronic tracking system). Report all closure activity in accordance with the standard electronic distribution list and also at the next CLCS CCB.

5.3.2.5 Other Members and Representatives

5.3.2.5.1 NASA CLCS Division Chiefs

Provide an assessment for each change request related to his/her function as to schedule, costs, and resources, and ensure that the requests associated with that particular function are implemented as agreed to at CLCS CCB. Ensure proper integration between the CLCS functions.

5.3.2.5.2 Contractor CLCS Organization Managers

Provide an assessment for each change request related to his/her function as to schedule, costs, and resources, and ensure that the requests associated with that particular function are implemented as agreed to at CLCS CCB. Ensure proper integration between the CLCS functions.

5.3.2.5.3 Security Representative's Responsibility

- Ensure that security practices and procedures are addressed and followed.
- Provide a security assessment in a timely manner for all change records that are processed by the CLCS CCB and ensure that any security issue is resolved prior to CLCS CCB disposition.

5.3.2.5.4 Safety and Mission Assurance Representative's Responsibility

- Ensure software and hardware safety, reliability, maintainability, and quality assurance requirements are addressed and met.
- Perform audits and surveys to assure configuration control board activities are in compliance with approved plans, procedures, and program requirements.
- Provide appropriate assessments in a timely manner for all change records that are processed by the CLCS CCB and ensure that any S&MA concern is resolved prior to CLCS CCB disposition.

6.0 FLOW PROCESS

The CLCS CCB flow process is illustrated in Figure 6-1.

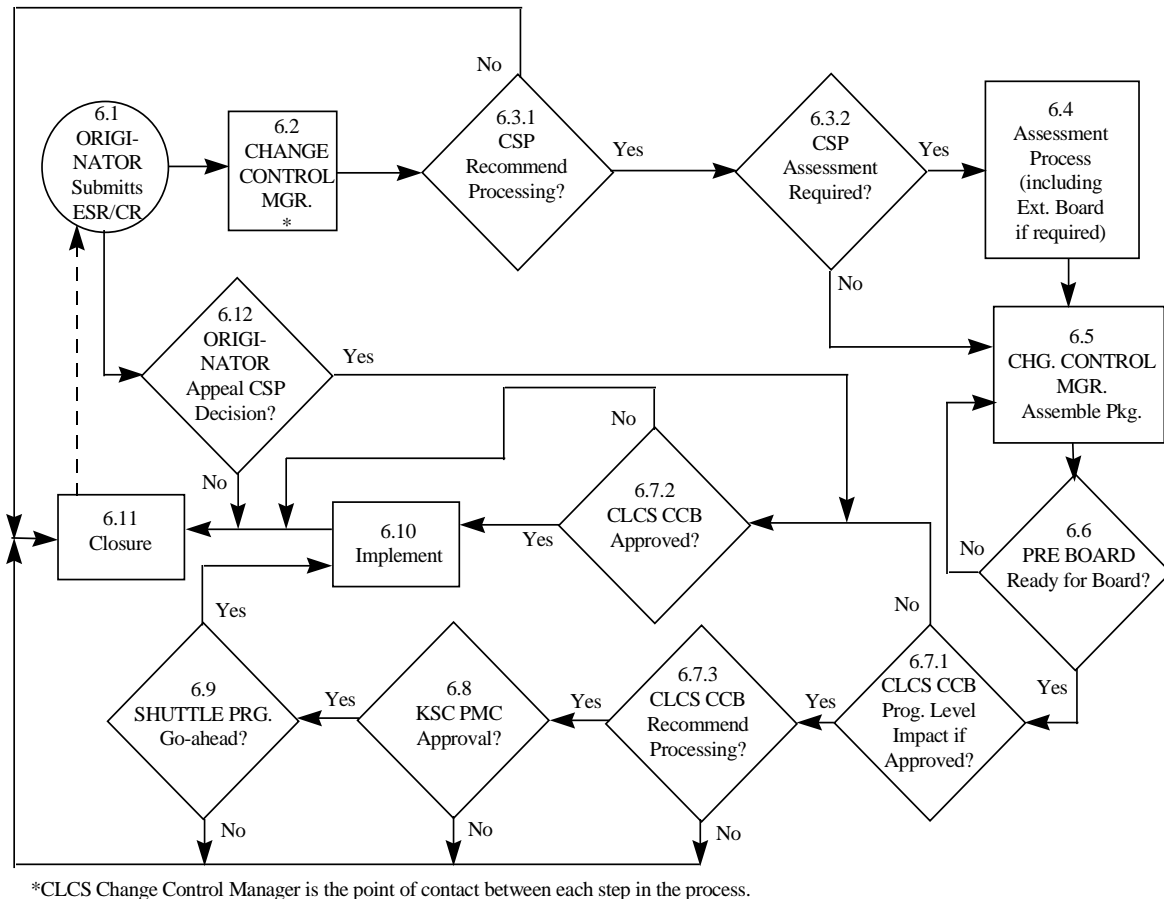


Figure 6-1 CLCS CCB Flow Process

6.1 ORIGINATOR

The originator (author) initiates a request for a configuration change or a change to the baseline requirements. This person assures that the ESR or CR is filled out completely and is technically correct, attaches all supporting documentation (drawings, logic/diagrams, specifications, or any technical reference data), and obtains the required signatures. The originator is also required to identify benefits of implementation and submit a costs/benefits analysis, along with any additional technical comments. The completed package is submitted to the CLCS Change Control Manager for processing. The originator must attend the CSP, Pre Board, and CLCS CCB and be prepared to discuss and justify the change request. The originator can appeal a decision of the CSP through the CLCS CCB. (Note: A change request from an external board to the CLCS CCB would be submitted as an Originator.)

6.2 CLCS CHANGE CONTROL MANAGER

The Change Control Manager is the focal point of all change requests submitted for CLCS CCB action. The Change Control Manager receives and reviews each change request package for thoroughness and either returns it for additional information or forwards it to the appropriate person/function in the change control process. He/she prepares agendas, notifies CSP, Pre Board, and CLCS CCB members and other appropriate personnel about meetings, and distributes minutes, documentation, and actions. He/she tracks and reports the status of each CLCS change request from initiation through closure.

6.3 CSP

CSP will be scheduled on an as-needed basis and will be conducted in a timely manner. CSP will screen each ESR/CR for potential impact to CLCS and to other systems, functions, or organizations.

6.3.1 CSP Recommend Processing?

If CSP determines that the change request is valid and the information is sufficient, the change request is accepted and will continue to be processed. If CSP determines that the request is not a valid CLCS requirement, the change request will be sent to the Change Control Manager for closure. The Change Control Manager will notify the originator of CSP's decision and rationale.

6.3.2 CSP Assessment Required?

If CSP determines that a change request has potential impact to a function, process, or organization, CSP identifies the responsible assessor(s), which includes external boards, if required. Each assessor will receive a copy of the change request and an assessment form to complete by a specified date. If CSP determines that the change request does not have an impact, it will be added to an agenda for Pre Board.

6.4 ASSESSMENT PROCESS

The assessor will review the change request and complete an engineering assessment identifying impacts that the change, if approved, would have on his/her function or organization as to resources--labor, budget--costs, schedule--time to complete, documentation impacts, or other impacts. The assessor forwards the completed assessment to the CLCS Change Control Manager by the specified due date.

6.5 CHANGE CONTROL MANAGER ASSEMBLE PACKAGE

The Change Control Manager receives all assessments from the Assessors and reviews them for thoroughness. The Change Control Manager assembles the assessments related to a particular change request and prepares the CIAR and CCB package for presentation to the Pre Board and the CLCS CCB.

6.6 PRE BOARD

Pre Board will be scheduled on an as-needed basis and will be conducted in a timely manner. Pre Board determines whether the change request package is ready for Control Board disposition. Each change request package that survives CSP will be forwarded to Pre Board following the assessment process (if required). Pre Board reviews the requests and assessments, and discusses or resolves, if possible, any integration issues or conflicts or problems. If more data is needed or an assessment is not documented clearly, the change request package is returned to the Change Control Manager to work the issue. Once Pre Board feels that a change request package is complete and all issues are understood, the package is added on an agenda for the CLCS CCB. The Pre Board makes a recommendation on the change request package to CLCS CCB.

6.7 CLCS CCB

CLCS CCB will be scheduled on an as-needed basis and will be conducted in a timely manner.

6.7.1 CLCS CCB Program Level Impact If Approved?

If the CLCS CCB determines that the change request has no Program level impact if it were approved, the change request will be considered for approval by the CLCS CCB. If the CLCS CCB determines that if approved the change request has a Program level impact, the CLCS CCB decides whether or not to proceed with processing the change request.

6.7.2 CLCS CCB Approved?

CLCS CCB reviews the change request package and determines if it should be processed or not. If CLCS CCB does not approve the change request, the request is forwarded for closure. If CLCS CCB approves the change request, the change request proceeds to implementation. The CCB, which serves as the work authorization document, is accompanied with a Task Directive. The CLCS CCB will report increases to baseline requirements to the CLCS PMC.

6.7.3 CLCS CCB Recommend Processing?

If the CLCS CCB determines that the change request would result in a need for increased funding or would affect the overall schedule of the CLCS project, CLCS CCB will decide whether or not to forward the change request to the KSC PMC for their recommendation. If the CLCS CCB determines that the request should not be processed, the change request will be forwarded for closure.

6.8 KSC PMC APPROVAL

The KSC PMC reviews the change request and determines if it is of significant value to the Project/Program to warrant requesting a schedule extension or additional funding from the Shuttle Program. If PMC approves the change request, the request will be sent to the Shuttle Program. If PMC disapproves the change request, it will be forwarded for closure. The Change Control Manager will notify the originator of the PMC disposition.

6.9 SHUTTLE PROGRAM GO-AHEAD

Approval by the Shuttle Program would provide additional funding and/or schedule extension as appropriate, and the change request would be implemented. A disapproval by the Shuttle Program would result in forwarding the change request for closure, and the Change Control Manager would notify the originator of the Shuttle Program disposition.

6.10 IMPLEMENT

The CLCS CCB, KSC PMC, and Shuttle Program provide the authority to implement a change request. The entire change process will vary in lengths of implementation time, depending on the process.

6.11 CLOSURE

Closure is the last step of the flow and occurs after the change request is either disapproved by CSP, CLCS CCB, KSC PMC, or the Shuttle Program, or the requirement has been implemented. If the ESR was approved, closure consists of actual physical verification that the change has been implemented and documentation has been updated. After the requirement has been satisfied, the originator signs the ESR/CR, indicating implementation is complete, and forwards it to the Change Control Manager for closure.

6.12 APPEAL

If CSP makes a determination that a change request should not be processed, it is forwarded for closure. The originator has an option to appeal CSP's decision by submitting the change request to the CLCS CCB (through the Change Control Manager). The appeal process ends with a CLCS CCB disposition.

7.0 APPLICABLE DOCUMENTS

- CLCS System Level Specification, 84K00200, dated April 23, 1997.
- CLCS Configuration Management Plan, 84K00052, dated April 23, 1997.
- ISO 9001-1994(E) Second Edition 1994-07-01, titled Quality Systems--Model for quality assurance in design, development, production, installation and servicing.

END